Trends in employment and wages, 2002 to 2007

Jane Lin

In 2007, Canada had the highest proportion of people employed in at least three decades and the national unemployment rate sank to a 33-year low of 5.8%. While the 2002 to 2007 period was marked by strong gains in employment, some concerns have arisen over the quality of these new jobs.

Historically, manufacturing employment in Canada, as in the United States, has been on a long downward trend. Once-prominent manufacturing industries such as steel, autos, textiles and clothing, and furniture are shedding jobs, while employment is increasing in the service sector (Krahn and Lowe 2005). In 1946, manufacturing accounted for an estimated 26% of total employment. In the ensuing decades, the economy shifted its focus towards more service-oriented work in health care, education, public administration, trade and finance. By 2007, manufacturing's share of employment had fallen to just 12%. The industry previously faced massive layoffs and factory closures in the recessionary periods of the early 1980s and early 1990s. In 1982, Canadian factories lost 208,000 workers and then, between 1990 and 1992, they lost another 315,000 workers. Even though the 2004 to 2007 period was a non-recessionary one, manufacturing endured three successive years of employment losses totalling 247,000, for a net decline of 241,000 since 2002.

Overall employment and earnings grew between 2002 and 2007 despite the declines in factory employment. While domestic demand remained robust, the appreciation of the Canadian dollar that began in 2002 rendered 'made in Canada' exports less competitive globally. Displaced factory workers have endured hardships in adjusting to the restructuring—some laid-off workers undoubtedly faced a steep drop in earnings

Jane Lin is with the Labour Statistics Division. She can be reached at 613-951-9691 or perspectives@statcan.gc.ca.

Data sources and definitions

This analysis is based mainly on data from the **Labour Force Survey** (LFS). The primary purpose of the Labour Force Survey is to produce estimates of employment and unemployment and it is the official source of unemployment data at Statistics Canada. In addition, the LFS also collects information on many extrinsic characteristics of job quality such as workers' wages and union coverage along with hours of work.

Data from the **Workplace and Employee Survey** (WES) were used to provide details on worker arrangements such as flexible hours and non-wage benefits. The WES is designed to explore a broad range of issues relating to employers and their employees. The survey aims to shed light on the relationships among competitiveness, innovation, technology use and human resource management on the employer side, and technology use, training, job stability and earnings on the employee side.

The **Survey of Employment, Payrolls and Hours** (SEPH) was used to shed light on wages at a detailed industry level and among hourly paid employees, particularly within the manufacturing industry. SEPH is Canada's only source of detailed information on the total number of paid employees, payrolls and hours at detailed industrial, provincial and territorial levels.

Constant dollar earnings quintiles

All dollar figures are expressed in terms of their value, or purchasing power, in 2007. Real wage growth is presented in 2007 dollar terms and is based on average hourly earnings for workers.

For the purpose of this analysis, workers were divided into five equal groups in 2002 based on their average hourly earnings. The dollar limits of the 2002 quintiles were converted to 2007 values that were then used to create earnings groups for subsequent years.

For the wage analysis on machine operators, workers were grouped into low, medium and high earnings. Workers who were making under $10 per hour in current dollars (unadjusted for inflation) were in the low-wage category. Many low-income studies use the $10 cut-off as a proxy for low-income workers (see 'Low wage and low income', *The Daily* of April 6, 2006 (http://dissemination.statcan.ca/Daily/English/060406/d060406b.htm).

when moving into other types of work. One previous study found that laid-off workers from the late 1980s and early 1990s suffered an 18% to 35% decline in wages five years after being laid off (Morissette et al. 2007). At the same time, however, other parts of the economy, particularly those based on natural resources, were facing boom times and could not find enough workers.

This article uses the Labour Force Survey to document trends in employment and pay by broad industry and occupation groups. More detailed industry breakdowns are provided by the Survey of Employment, Payrolls and Hours and the Census (see *Data sources and definitions*). Because these surveys are cross-sectional, they provide no information on any flows between industries or occupations. Even so, they point to a labour market undergoing major structural shifts.

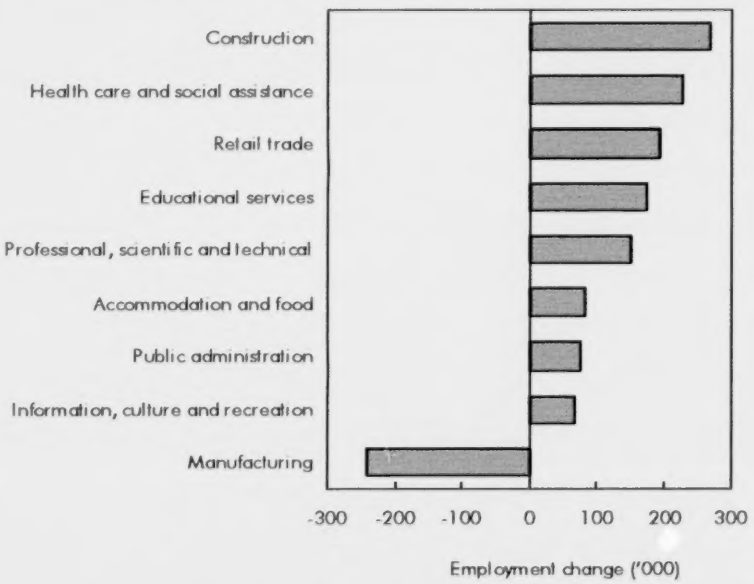
While important, pay is not the sole indicator of job quality. Non-wage benefits, work arrangements and skills development and training are also important factors (see *Non-wage benefits*). Other indicators of employment quality include the safety and ethics of employment, work hours, stability and security of work, and social protection, social dialogue and workplace relationships, as well as the intrinsic nature of work (see *Measuring employment quality*).

Recent employment gains spread across several industries

In 2007, employment increased in every major industry, except manufacturing. Construction saw the largest increase, a net of 64,000 additional workers, followed closely by 61,000 in health care and social assistance. These two industries employed an estimated 125,000 more workers in 2007 than they did in the previous year. For every job lost in manufacturing, nearly two were gained in either construction or health care and social assistance. Accommodation and food services, professional, scientific and technical services, and information, culture and recreation also had large employment gains, as did retail trade, from 2006 to 2007. What is notable about retail trade, however, is that the boost of 32,000 workers in 2007 coupled with the loss of 74,000 factory workers put the two industries at the same employment level, each with 2 million workers.

The industry shifts in 2007 are part of a longer-term trend. Over the six-year period from 2002 to 2007, more workers found positions in construction and health care and social assistance than in retail trade (Chart A). The recent manufacturing downturn began in 2004, reversing the trend of the early 1990s when manufacturing was one of the primary drivers of employment growth (Ferrao 2006). However, in hindsight, this can be seen as a blip in the long-term downward trend. Natural resources also

Chart A From 2002 to 2007 a number of large industries added workers, while manufacturing shed jobs



Source: Statistics Canada, Labour Force Survey, 2002 and 2007.

Chart C Hourly earnings outpaced inflation after 2004

Sources: Statistics Canada, Consumer Price Index and Labour Force

Chart B The two highest paid groups saw the biggest influx of workers

Source: Statistics Canada, Labour Force Survey, 2002 and 2007.

Measuring employment quality

In 2007, the Task Force on the Measurement of the Quality of Employment was created by the Conference of European Statisticians with the mandate to develop a single internationally recognized measurement framework for the quality of employment. Statistics Canada chairs the task force, which consists of several national statistical offices. The goal is to develop a conceptual framework and a procedure to test and validate selected indicators.

The dimensions of the framework comprise safety and ethics of employment, income and benefits from employment, working hours and balancing work and non-working life, stability and security of work and social protection, social dialogue and workplace relationships, skills development and life-long learning, and intrinsic nature of work. For more information see "Toward an International Quality of Work Framework: A report to the Task Force on the Measurement of Quality of Work" (Bowlby 2006), and "Statistical Measurement of Quality of Employment" (Steering Committee on the Measurement of Quality of Employment, www.unece.org/stats/ToS.html).

Table 1 Employment gains and average hourly earnings in selected occupations

	Average hourly earnings			Employment change
	2007	2002	change	
	2007 $		%	'000
All occupations	20.41	19.69	3.7	1,556.0
Higher paying				
Other management	31.40	30.26	3.8	126.8
Teachers and professors	28.84	28.49	1.2	100.6
Natural and applied sciences and related	28.62	28.06	2.0	143.5
Occupations in social science, government and religion	23.42	22.46	4.3	97.1
Other trades	22.06	21.47	2.7	55.6
Professional occupations in health, nurse supervisors and registered nurses	29.75	28.16	5.6	22.2
Lower paying				
Technical, assisting and related occupations in health	20.14	18.72	7.6	73.2
Machine operators and assemblers in manufacturing, including supervisors	18.37	17.81	3.2	-170.0
Clerical, including supervisors	17.10	16.95	0.9	180.1
Trades helpers, construction, and transportation labourers and related	16.46	15.92	3.4	69.1
Other sales and service, including travel and accommodation, attendants in recreation and sport, supervisors	12.30	12.00	2.5	93.4
Retail salespersons, sales clerks, cashiers, including retail trade supervisors	11.61	11.47	1.2	89.2

Source: Statistics Canada, Labour Force Survey.

versities also added 100,000 teachers and professors over the period, paying an average hourly rate of $28.84 in 2007. Natural and applied sciences and related jobs encompass a diverse range of workers, from engineers, architects and scientists to user support technicians—they added 143,000 to their ranks over the period, and earned $28.62 per hour on average in 2007. Jobs in social sciences, government services and religion also got a boost of 97,000 over the six years. In 2007, they earned an above-average $23.42 per hour.

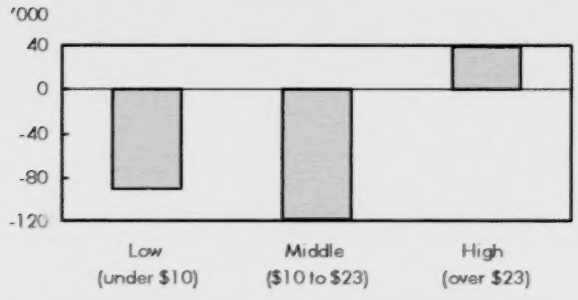
About 180,000 more clerical jobs were also created since 2002; these workers earned $17.10 on average in 2007. Retail salespersons and sales clerks had a lower average hourly pay of $11.61 in 2007; this group of workers grew by 89,000 over the six years. Sales and service jobs not elsewhere classified, like those in travel or accommodation, gained even more workers, adding 93,000 over the period with an average hourly rate of $12.30 in 2007. The biggest gains in health care came from the addition of 73,000 technical, assisting and related workers, which includes medical laboratory technicians as well as nurse aides and pharmacy technicians. On average these workers earned $20.14—about the average wage of all workers. Registered nurses and others in professional occupations in health experienced a more moderate increase of 22,000 between 2002 and 2007; however, their hourly pay was significantly higher at $29.75 in 2007.

The boom in construction also increased demand for workers at all skill and pay levels—just as in health care. Other trades added 56,000 members to their ranks and in 2007 they were paid a higher-than-average $22.06 per hour. This occupation includes residential and commercial installers and service people (such as window and door installers). In contrast, trades helpers, and construction and transport labourers, increased their numbers by 69,000 but earned only $16.46 per hour in 2007.

Declines in manufacturing employment

According to the 2006 Census, machine operators and assemblers saw big job losses over the 2001 to 2006 period (Statistics Canada 2008). This occupational group includes sewing machine operators, pulp and paper machine operators

Chart D From 2002 to 2007 many machine operators in the low- and mid-wage ranges lost jobs



Source: Statistics Canada, Labour Force Survey, 2002 and 2007.

and motor vehicle assemblers, inspectors and testers. According to the Labour Force Survey, many of the workers who lost their jobs between 2002 and 2007 were in the middle range to lower end of the pay scale, while higher-paid machine operators and assemblers—those averaging over $23 per hour—saw an increase in their numbers over the period (Chart D). The proportion of machine operators and assemblers in manufacturing who earned over $23 per hour increased from 14% in 2002 to 22% by 2007. Those earning less than $10 per hour dropped from 17% in 2002 to 8%. The share of those in the middle range held relatively steady at around 70%. Machine operators and assemblers earned an average of $18.37 per hour in 2007, up 3% from $17.81 (in 2007 dollars) in 2002.

While a lot of attention has focused on auto workers losing their jobs, sewing machine operators also experienced layoffs and employment declines. According to the 2006 Census, sewing machine operators experienced the fifth largest drop in numbers of all occupations between 2001 and 2006. Nearly 52,000 jobs disappeared from textile mills and clothing manufacturing between 2002 and 2007, according to the Survey of Employment, Payrolls and Hours.

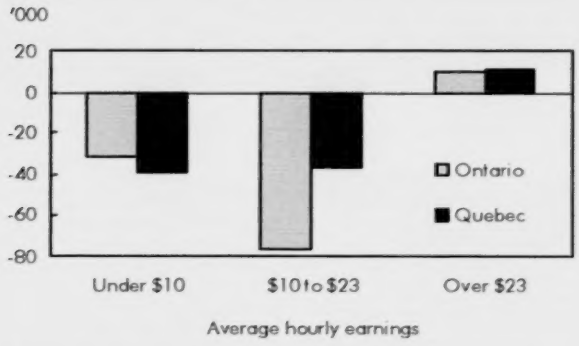
In fact, many of the job losses in manufacturing over the 2002 to 2007 period occurred in textiles and clothing, which on average pay much less than transportation equipment firms. Textile and clothing businesses cut the number of employees on their payrolls by almost half. These workers were paid, on average, between $13.60 and $15.65 in 2007. Most of the job losses in transportation equipment from 2002 to 2007 were in motor vehicle parts manufacturing, where employees averaged a much higher $25.13 per hour in 2007 (Table 2). Overall, much of the employment loss in manufacturing happened at the lower end of the

Table 2 Average hourly wages for hourly paid employees in various manufacturing industries

	2002	2003	2004	2005	2006	2007
				2007 $		
Textile mills	16.31	15.92	17.54	17.63	16.87	15.65
Clothing manufacturing	12.69	12.64	14.10	13.82	14.73	13.60
Transportation equipment manufacturing	26.57	26.46	26.61	26.31	26.17	26.48
Motor vehicle manufacturing	32.61	32.99	32.11	31.38	32.25	32.49
Motor vehicle parts manufacturing	25.04	24.56	24.76	24.55	24.43	25.13
Aerospace product and parts manufacturing	24.53	24.87	26.23	26.33	25.63	26.35
Furniture and related product manufacturing	18.44	18.14	19.00	19.67	19.55	19.37
Household and institutional furniture and kitchen cabinet manufacturing	17.78	17.59	18.81	19.57	19.48	19.08

Source: Statistics Canada, Survey of Employment, Payrolls and Hours.

Chart E In Ontario, machine operators lost jobs primarily in the mid-wage range; in Quebec, they lost jobs almost equally in the low and mid ranges



Source: Statistics Canada, Labour Force Survey, 2002 and 2007.

wage scale over the 2002 to 2007 period. Even as recently as 2006 and 2007, clothing manufacturing suffered greater employment losses than motor vehicle parts.

The situation in Ontario and Quebec

Central Canada has been at the forefront of discussions about losses in high-paying factory jobs and gains in service sector employment, especially since Ontario and Quebec account for the vast majority of the declines. Ontario experienced heavier factory losses in the mid range of the pay scale (Chart E). In the highest pay category, employment of machine operators and assemblers in manufacturing increased. In Ontario, the average hourly wage for machine operators and assemblers in manufacturing was $18.89 in 2007, a 2.0% increase from $18.53 in 2002 (in 2007 dollars, using provincial CPI). For all workers in Ontario, constant-dollar earnings grew 3.5% over the same period.

By contrast, employment for machine operators and assemblers in Quebec declined in both the mid-wage and the low-wage groups. Quebec has a high concentration of clothing manufacturing and textile workers, and this group earns less per hour than auto workers in Ontario. In Quebec, the average hourly pay for machine operators and assemblers in manufacturing was $17.08 in 2007, an increase of 5.3% from $16.22 in 2002 (in 2007 dollars, using provincial CPI). For Quebec workers overall, real earnings increased 3.3% from 2002 to 2007.

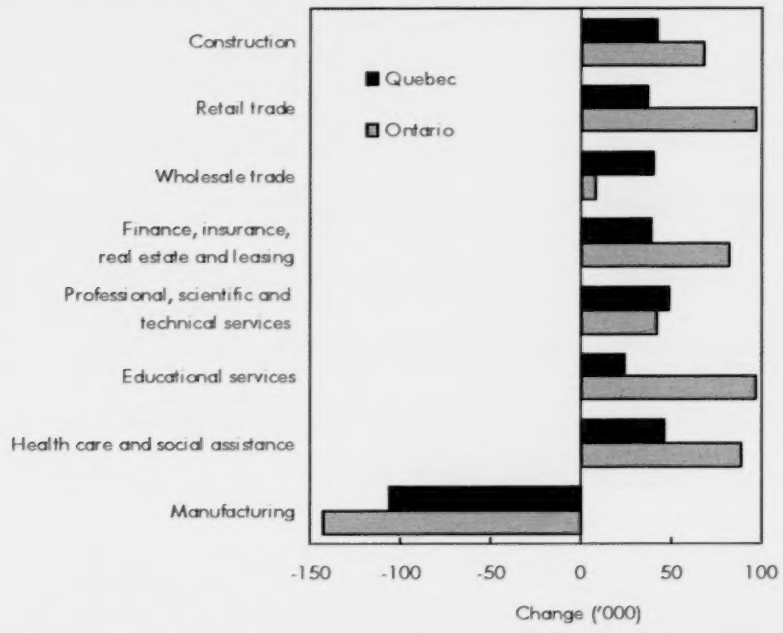
While increases in other high-paying industries have offset manufacturing losses in Ontario, this does not mean that ex-manufacturing workers were getting these high-paying jobs. An earlier Statistics Canada study found that high-seniority men who lost their jobs between 1987 and 1997 earned 18% to 35% less five years later; their female counterparts earned 24% to 35% less (Morissette et al. 2007).

A closer look at Ontario reveals that while employment in the retail trade industry experienced a big increase from 2002 to 2007, similar gains were made in educational services. In addition, health care and social assistance, as well as finance, insurance and real estate and construction all added workers (Chart F).

By occupation, the largest increase was for other management positions, which gained 72,000 workers from 2002 to 2007, followed by clerical workers (60,000) and social science, government service and religion (55,000). Other management jobs cover a diverse range, including managers in construction, public administration and banking and telecommunications. With the exception of retail trade and clerical positions, these were jobs with above-average hourly pay. Over the same period, Ontario lost 94,000 machine operators and assemblers in manufacturing, including supervisors. Workers making between $10 and $23 per hour were hit the hardest by layoffs and plant closures, more so than those making less than $10. Workers in this occupation averaged $18.89 per hour in 2007, compared with the province's overall average of $21.27.

In Quebec, the professional, scientific and technical services industry as well as health care and social assistance and construction recruited the most workers over the 2002 to 2007 period, each outnumbering the additions to retail trade. Occupationally, machine operators suffered a loss of 65,000 in their ranks over the six years. During this time, the province saw an increase in clerical workers and wholesale, technical insurance and real estate specialists as well as sales and service occupations related to travel, accommodation,

Chart F In Ontario, education added as many workers as retail trade between 2002 and 2007; in Quebec, retail trade trailed several industries



Source: Statistics Canada, Labour Force Survey, 2002 and 2007.

sport and recreation. As in Ontario, more workers found jobs in management and social sciences, government services and religion. In addition, about the same number of teachers and professors were added as retail salespersons and clerks. Teachers in Quebec earned an average of $28.16 per hour in 2007 compared with $11.02 for retail salespersons and clerks. The average pay for machine operators and assemblers in manufacturing was $17.08, compared with $19.35 for all workers.

Summary

In recent years, industry employment trends have been interpreted by some as evidence that high-paying manufacturing jobs were being replaced by lower-paying service jobs. In fact, the jobs lost in manufacturing were not all high paying. Nor were all the gains in poor paying positions. Between 2002 and 2007, employment increased more strongly in higher-paying industries and occupations. Earnings increased rapidly for workers in the mining, oil and gas industries, and managers in primary production (excluding agriculture). Meanwhile, most of the job losses among machine operators and assemblers in manufacturing occurred in the mid and lower pay ranges. In Ontario, losses were heavy in the mid range; in Quebec, the losses were split more evenly between the low and mid ranges.

The employment declines in manufacturing from 2004 to 2007 totalled nearly 250,000. While this was not as large as the losses of the early 1990s, most of the jobs were full time. An earlier study found that high-seniority men laid off in the late 1980s to late 1990s earned less five years after being let go (Morissette et al. 2007). However, although employment increased in high-paying industries and occupations, more research is needed to determine whether ex-factory workers were able to share in these job gains.

While retail trade has added many workers, construction and health care and social assistance saw larger additions to their workforces between 2002 and 2007. The increases among other high-paying jobs may partly explain the discrepancy between increasing real earnings and disappearing manufacturing jobs. Occupations at the high end of the pay scale, such as other management positions in business, finance or government and natural and applied sciences, saw big increases. In construction and health care, workers at both the higher and lower ends of the pay scale saw increases.

Non-wage benefits

In 2005, almost three-quarters of all workers had at least some employer-provided non-wage benefits, up from just over two-thirds in 1999, according to the Workplace and Employee Survey. Non-wage benefits include supplemental medical or dental insurance, life insurance, a pension plan, or a group RRSP.

Retail trade and construction, which saw large increases in employment between 2002 and 2007, provided proportionately fewer of their workers with benefits (68% and 66% respectively, in 2005) than did manufacturing (81%), but this alone does not present a complete picture. Employment also increased over the same period in industries such as education and health care and social assistance, which reported rates of non-wage benefits on a par with or higher than manufacturing (90% and 79% respectively).

In addition to pay and benefits, work arrangements can be an important dimension of quality of employment and help in attracting and retaining staff (Mollins 2008). The option of flexible, reduced or compressed

Table 3 Selected characteristics of employment in the largest gainers and losers by industry

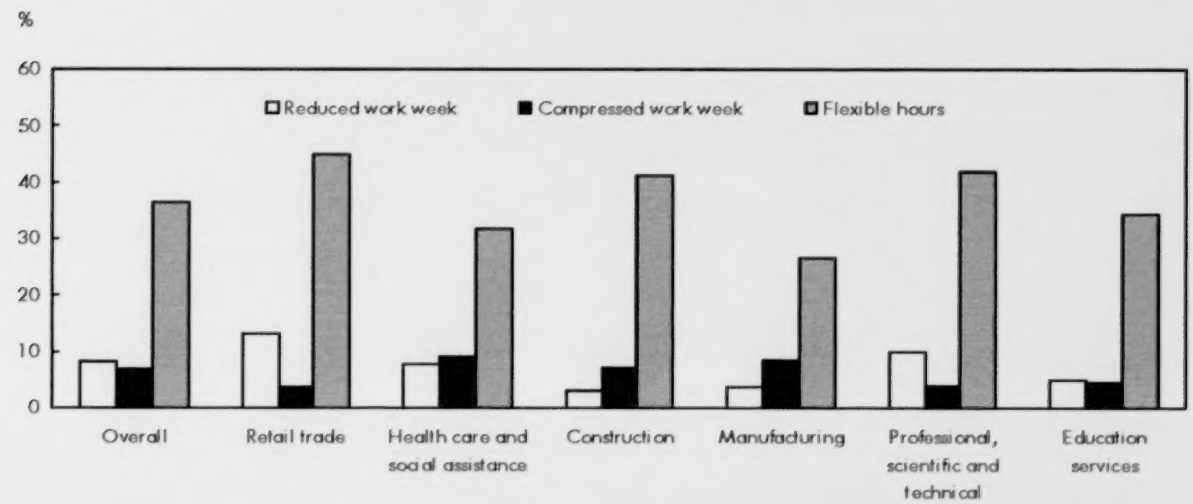
	All industries	Manufacturing	Construction	Health care and social assistance	Retail trade	Educational services	Professional, scientific and technical services
				%			
2007							
Men	52.7	71.6	87.9	17.5	45.2	35.0	57.8
Women	47.3	28.4	12.1	82.5	54.8	65.0	42.2
Full-time	81.8	96.1	93.1	76.2	67.1	74.2	86.6
Part-time	18.2	3.9	6.9	23.8	32.9	25.8	13.4
50 hours or more per week	9.2	4.5	18.6	5.9	2.2	4.1	11.8
Usual hours per week	36.5	39.7	41.2	34.2	31.4	32.3	37.9
Working unpaid overtime	11.4	8.8	4.9	9.3	5.6	31.5	19.3
Permanent	87.1	93.4	81.6	87.6	88.3	75.5	91.9
Temporary	12.9	6.6	18.4	12.4	11.7	24.5	8.1
Union	31.5	29.9	32.6	55.5	15.5	70.7	5.7
2005							
Working compressed week	6.9	8.4	7.0	8.9	3.4	4.4	3.8
Working flexible hours	36.6	26.5	41.4	31.7	44.9	34.2	42.0
Working reduced hours	8.0	3.7	3.0	7.7	13.2	4.8	9.9
Employees receiving classroom training	36.5	34.1	32.6	52.9	27.5	47.3	38.1

Source: Statistics Canada, Labour Force Survey 2007; Workplace and Employee Survey, 2005.

Non-wage benefits (continued)

work weeks may help workers maintain a better work-life balance. A flexible schedule means workers can vary their start and stop times as long as they work the equivalent of a full work week; a compressed schedule means longer workdays to reduce the days worked over some set period. In 2005, over one-third of workers (37%) had flexible hours (Chart G), a slight decline from 39% in 1999. In 1999, professional, scientific and technical workers had the highest share of workers on flex hours (57%); this dropped to 42% in 2005. Many industries with major employment gains between 2002 and 2007 had a larger share of employees reporting flexible schedules in 2005 than manufacturing. Retail trade, professional, scientific and technical services, and construction all had high shares of flexible schedules. In fact, manufacturing had the lowest share of workers with flexible hours—just over a quarter in 2005.

Chart G Flexible hours more common in many non-manufacturing industries

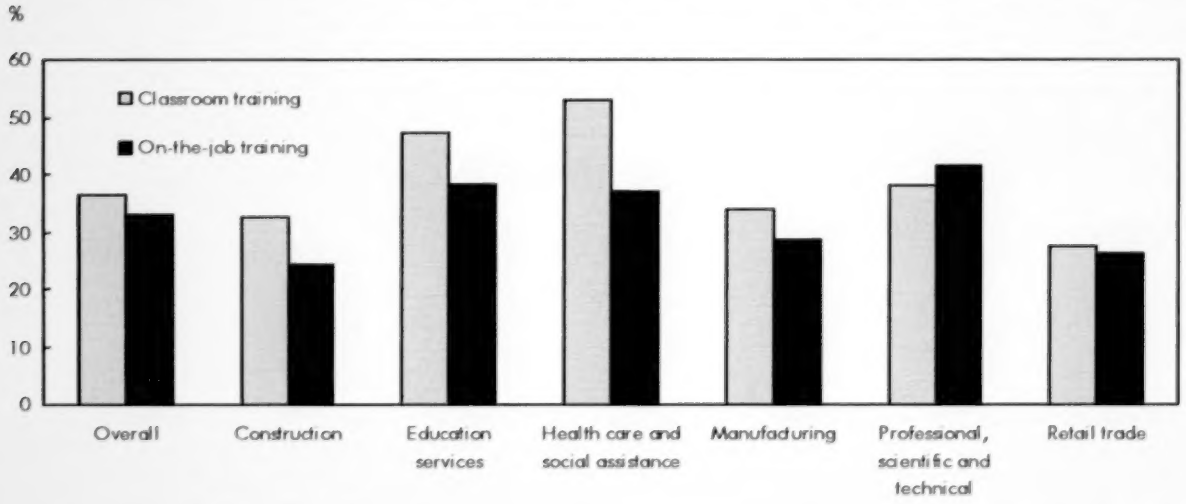


Source: Statistics Canada, Workplace and Employee Survey, 2005.

Non-wage benefits (concluded)

Training is another element of job quality. Formal classroom and informal on-the-job training can increase a worker's chances for career advancement. And for some professions, such as educational workers, medical professionals, accountants, engineers and others needing to keep current on the latest theories and practices, ongoing training is seen as part of the job. Several high-growth industries in the 2002 to 2007 period had a sizeable share of workers receiving training (Chart H). In 2005, over half (53%) of workers in health care and social assistance and nearly half (47%) in education got formal classroom training during the previous 12 months—much more than the overall average of 37%. Retail workers were the least likely to receive classroom training (28%). Just over one in three (34%) manufacturing workers reported classroom training in 2005, only slightly more than the share of construction workers (33%), according to the latest Workplace and Employee Survey. Informal on-the-job training happens more often than classroom training only for workers in professional, scientific and technical services.

Chart H Health care and social assistance, and education reported the most formal training



Source: Statistics Canada, Workplace and Employee Survey, 2005.

References

Bowlby, Geoff. 2006. *Toward an International Quality of Work Framework: A report to the Task Force on the Measurement of Quality of Work*. Statistics Canada. Ottawa. 14 p.

Chaffe, Alan. 2008. *Consumer Prices: The Year 2007 in Review*. Statistics Canada Catalogue no. 11-621-M – No. 074. Ottawa. 13 p. http://www.statcan.ca/english/research/11-621-MIE/11-621-MIE2008074.pdf (accessed September 8, 2008).

Ferrao, Vincent. 2006. "Recent changes in employment by industry." *Perspectives on Labour and Income*. Vol. 7, no. 1. January. Statistics Canada Catalogue no. 75-001-XIE. p. 5-10. http://www.statcan.ca/english/freepub/75-001-XIE/10106/art-1.pdf (accessed September 8, 2008).

Frenette, Marc, Feng Hou, René Morissette, Ted Wannell and Maryanne Webber. 2008. *Earnings and Incomes of Canadians Over the Past Quarter Century, 2006 Census*. Statistics Canada Catalogue no. 97-563-X. Ottawa. 51 p. http://www12.statcan.ca/english/census06/analysis/income/pdf/97-563-XIE2006001.pdf (accessed September 8, 2008).

Krahn, Harvey J. and Graham S. Lowe. 2005. *Work, Industry, and Canadian Society*. Third Edition. Toronto, Ontario. Thomson Nelson. p. 26.

Mollins, Julie. 2008. *Perks needed to keep older workers: poll*. April 15. Reuters UK. Thomson Reuters. http://uk.reuters.com/article/lifestyleMolt/idUKN1547382820080415 (accessed September 12, 2008).

Morissette, René, Xuelin Zhang and Marc Frenette. 2007. *Earnings Losses of Displaced Workers: Canadian Evidence from a Large Administrative Database on Firm Closures and Mass Layoffs*. Statistics Canada Catalogue no. 11F0019MIE – No. 291. Analytical Studies Branch Research Paper Series. Ottawa. 38 p. http://www.statcan.ca/english/research/11F0019MIE/11F0019MIE2007291.pdf (accessed September 8, 2008).

Statistics Canada. 2008. *Canada's Changing Labour Force, 2006 Census*. Statistics Canada Catalogue no. 97-559-X. Ottawa. 34 p. http://www12.statcan.ca/english/census06/analysis/labour/pdf/97-559-XIE2006001.pdf (accessed September 8, 2008).